

**Control of Chemical Mechanical Polishing Pad
Conditioner Directional Velocity to Improve Pad Life**

Abstract of the Disclosure

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- A method, apparatus and medium of conditioning a planarizing surface includes installing a wafer to be polished in a chemical mechanical polishing (CMP) apparatus having a polishing pad and a conditioning disk, polishing the wafer under a first set of pad conditioning parameters selected to maintain wafer material removal rates with preselected 10 minimum and maximum removal rates, determining a wafer material removal rate occurring during the polishing step, calculating updated pad conditioning parameters to maintain wafer material removal rates within the maximum and minimum removal rates, and conditioning the polishing pad using the updated pad conditioning parameters, wherein the updated pad conditioning parameters are calculated by a pad wear and conditioning model that predicts 15 the wafer material removal rate of the polishing pad based upon the rotational speed and direction of the conditioning disk.